DOCUMENT RESUME

ED 021 804 24 SP 001 539

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NATIONAL RESEARCH TRAINING INSTITUTE FOR PARTICIPANTS IN CONSORTIUM RESEARCH DEVELOPMENT (CORD) PROJECTS (AUGUST 20 TO SEPTEMBER 1, 1967). FINAL REPORT.

Oregon State System of Higher Education, Monmouth. Teaching Research Div.
Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.
Bureau No-BR-7-1096
Pub Date Nov 67
Grant-OEG-1-7-071096-3873
Note-94p.
EDRS Price MF-$0.50 HC-$3.84
Descriptors-ACHIEVEMENT TESTS, *COLLEGE FACULTY, *EDUCATIONAL RESEARCH, INDIVIDUALIZED PROGRAMS, *INSTITUTES (TRAINING PROGRAMS), *INSTRUCTIONAL IMPROVEMENT, *RESEARCH METHODOLOGY
Identifiers-*Consortium Research Development Projects, CORD

To facilitate the basic objectives of Consortium Research Development (CORD) projects, a specialized educational research training institute was conducted for 52 college professors engaged in CORD projects. The institute was designed to increase participants' competencies for improving their courses of instruction through research and to enable them to engender educational research activities within their spheres of influence. Flexible programming provided for identification of specific needs and development of individualized programs of study in these competency areas: (1) specifying objectives in behavioral criterion form, (2) task analysis of instructional specifications, (3) instructional systems development, (4) measurement, (5) research design, (6) data analysis, and (7) proposal and report writing. Evaluations indicated that all institute objectives were achieved although it is recommended that diagnostic tests be developed for guiding participants into small group and independent study sessions following large group presentations. Included with the report are the 7 measurements used in pre- and posttesting of research and instructional competencies; appended also are the institute evaluation questionnaire, the schedule, a list of participants, and copies of mailed publicity materials. SELF INSTRUCTIONAL MATERIALS FOR RESEARCH TRAINING, Supporting Document A to this report, is also in the ERIC collection. (JS)

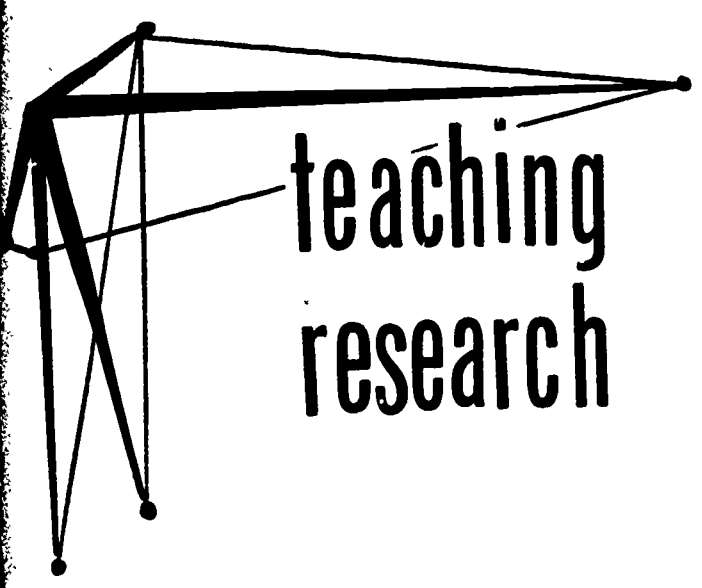
FINAL REPORT

Project No. 7-1096 — 24

Grant No. OEG-1-7-071096-3873

NATIONAL RESEARCH TRAINING INSTITUTE FOR PARTICIPANTS IN CONSORTIUM RESEARCH DEVELOPMENT (CORD) PROJECTS

November 1967



U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

OREGON STATE SYSTEM OF HIGHER EDUCATION

Office of Education
Bureau of Research

NATIONAL RESEARCH TRAINING INSTITUTE FOR PARTICIPANTS IN CONSORTIUM RESEARCH DEVELOPMENT (CORD) PROJECTS

Project No. 7-1096
Grant No. OEG-1-7-071096-3873

Dale G. Hamreus

November 1967

The research reported herein was performed persuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinion stated do not, therefore, necessarily represent official Office of Education position or policy.

TEACHING RESEARCH
A DIVISION OF THE OREGON
STATE SYSTEM OF HIGHER EDUCATION

MONMOUTH, OREGON

Contents

List of Tables

INTRODUCTION

To facilitate the basic objectives of the various Consortium Research Development (CORD) projects, a specialized educational research training institute was conducted for college professors who were currently participating in CORD projects. This group of professors met at Teaching Research during the two week period, August 20 to September 1, 1967. The institute was designed to provide a set of learning experiences to the participants which would increase their competencies for improving their courses of instruction through research and enable them to engender educational research activities within their spheres of influence.

Empirical development of courses of instruction requires several specialized skills and utilizes a newly evolving knowledge base. The diversity of CORD institutions and backgrounds of participating professors suggested that considerable flexibility be programed into the Institute activities. With this in mind, provisions were made to identify specific needs of each institute participant followed with specific attention to as many such needs as time permitted. Prior to the termination of the institute, individualized programs of study were devised for each participant in each of his need areas thus enabling him to continue to pursue those topics on his own if he desired.

Objectives

The specific objectives of the Training Institute were to develop competencies in the following areas:

(a) Specifying objectives in behavioral criterion form. This included the statement of objectives for instructional systems design purposes, their modification and the refinement in developmental phases, and their revision and simplification for dissemination.

(b) Task analysis and instructional specifications. This included information on hierarchial task analysis and techniques for specifying instructional requirements of various kinds to achieve task related behaviors.

(c) Instructional systems development. This included experimental operations and procedures, development of external control strategies, instructional monitoring procedures, and evaluation-revision operations to maximize the learning effects of each instructional element.

(d) Measurement. This included information on the procedures used in the selection and development of appropriate criterion measures for various types of behavioral objectives, and techniques for assessing absolute criterion performance versus relative performance.

(e) Research design. This included information on "within group" variance and the identification of learner variables relevant to the learning experience; manipulable and non-manipulable variables; types of research studies; alternative experimental designs; and operations research methods.

(f) Data analysis. This included selection of appropriate statistical techniques for analysis of evaluation and/or experimental data, and the use of computers in the process of analysis.

(g) Proposal and report writing. This included information as to the components of the research proposal, the use of operational language, and the key role of evaluation of the educational product, and/or the experiment itself — including limitations, inferences, implications, and description of new questions raised and additional experimentation required.

Trainees

The training group consisted of a total of 61 participants, fifty-two of whom were college professors selected by the various U. S. Office of Education Regional Research Program Directors from those institutions of higher learning cooperating in the CORD program, and the remaining nine participants U. S. Office of Education observors representing the Regional Research Program of the Bureau of Research. A complete roster of the Institute participants is contained in Appendix A.

The participants represented a very diverse population of interests. The breakdown by discipline is as follows:

English	3
Higher Education Administration	10
Psychology	2
American Studies	2
History	2
Music	1
Mathematics	4
Education	15
Religion	1
Communications	1
Natural Science	2

Biological Science	4
Sociology	2
Economics	1
Speech	1
Business	1
Guidance	1

Of the 52 college level participants, only four had never had a course in psychology; 21 had, at some time, written and submitted for funding at least one research proposal related to the improvement of instruction; and 19 of the 21 had been funded on at least one such proposal.

DESCRIPTION OF THE PROGRAM

Pre-institute preparations consisted of two major activities: First, the development of instructional materials for use in the institute; and second, the necessary communications to participants prior to the institute.

The instructional materials development for the institute was undertaken by the institute staff under a separate research grant and resulted in a set of self-study instructional materials. The complete set of self-study materials accompanies this report as Supporting Document A.

Considerable communication with participants was necessary prior to the institute and consisted of four general mailings. The first mailing contained an Administrative Information Bulletin which covered the following topics: Introduction to the institute, how participants were selected, housing, transportation, general information (mail, telephone, laundry, banking), stipends, food service, clothing, recreation, questions, social events, tentative institute schedule, dormitory information, list of participants, and participant questionnaire. A copy of the bulletin is included as Appendix B.

The second mailing to each participant contained an updated participant list and included names of Directors of Regional Research Programs, U. S. Office of Education, who would be attending. Also included were approximately 15 brochures and maps of Oregon and the Northwest to help describe the area to the participants.

The third mailing served to comfirm mode of travel and arrival time and gave instructions for making initial contact with institute representatives if arriving by airplane. A copy of this communication is included as Appendix C.

The fourth and final mailing sought social security information from participants desiring to receive stipend payment during the institute. A copy of the memo is found in Appendix D.

The institute program was divided into two sections to provide for smaller classes and more individualized attention to participants. Each section was given identical instruction.

Participants were randomly assigned to either Section I or Section II, which permitted the opportunity of using a pre- post- test design for purposes of evaluating learning gains resulting from the institute. This activity will be more fully discussed below under Evaluation.

Because of the nature of the program it was expected that there would be a wide variance in the abilities and experiences of the participants. Therefore, the institute was designed to identify strengths and weaknesses of each participant in each topic area and to provide, as much as possible, the necessary background experience and the individualized program required to make it an optimal learning experience for each participant.

Participants were each provided the self-instructional materials for each topic and scheduled an opportunity to study the materials before the topic was presented by the institute staff. Each topic was presented in a group-paced programed sequence in the Teaching Research Automated Classroom (TRAC). At the completion of the group-paced presentation, participants were administered a criterion test for that topic in the TRAC system. Based on their scores on the criterion tests, participants were scheduled to either a small group seminar or individual instructional experience. Those individuals who achieved competence on each topic before the allotted time was expended undertook the preparation, on an individual basis, of a research proposal relevant to their own area of interest. These individuals worked directly with the Institute Director or other assigned institute staff members. Individuals who did not develop criterion behavior by the end of the time allotted for each topic were furnished by each topic specialist an individual reading list and other materials necessary to continue their learning experience.

Behavioral topics and staff members responsible for them were:

Behavioral Topics	Topic Specialists
Specifying Objectives	Dr. Casper F. Paulson
Task Analysis and Instructional Specification	Dr. Paul Twelker
Instructional Systems Development	Dr. Dale Hamreus
Measurement	Dr. Del Schalock
Research Design	Dr. John Gordon
Data Analysis I & II	Dr. James Beaird
Proposal and Report Writing	Dr. Jack Crawford

Topics were covered in sequence after an orientation and overview session. The emphasis of the first week of the institute as indicated by the first three topics, primarily on the development of new instructional systems. The second week was devoted primarily to planning and implementing research on instruction and curriculum innovations. The institute was concluded with a summary and evaluation session. A typical daily schedule was as follows:

8:00 - 9:45 A.M. Group-paced Topic Presentation in TRAC Facility

This was a carefully prepared, pre-tested, learning experience on one of the institute topics requiring active response from participants and providing feedback to the presenter on the percentage of students responding correctly and an individual record of errors made by each student.

9:45 - 10:00 A.M. Break

10:00 - 11:00 A.M. Administration of Criterion Test

The scores on each topic criterion test were used to group students homogeneously for further study of each topic.

11:00 - 12:00 Noon Independent and Small Group Study

Individuals experiencing difficulty in common subtopics worked together under the guidance of staff member in an individual tutorial, or seminar type situation in order to gain competence in the specified behavior.

12:00 - 1:30 P.M. Lunch

1:30 - 4:00 P.M. Independent and Small Group Study

This was a continuation of the work undertaken in the morning. Some individuals demonstrated sufficient competence in the topic to apply the behavior to the development of a research proposal relevant to his own area of interest.

4:00 - 5:00 P.M. Group Meeting (Interaction)

A discussion session was held where ideas of the day were exchanged -- reactions, comments, questions, housekeeping details, etc.

7:00 - 10:00 Independent Study

During this period the participant studied the specially prepared self-instructional materials on the topic scheduled for the following day.

The complete institute schedule for both sections is contained in Appendix E.

EVALUATION

Three forms of evaluation were employed: 1) a simple pre- post-test measure of criterion scores to determine what learning gains resulted from the institute; 2) participants' written appraisals of the institute on a prepared evaluation form; and 3) participants' summary and evaluative comments obtained during the final two hour institute session devoted specifically to that purpose. Each of these evaluations will be summarized below.

Evaluation 1: Pre- post-test gain scores

The following design was established for the pre- post-test measure of evaluation. Prior to arrival, institute participants were randomly assigned to either one of two sections. Section 1 did not receive a pre-test, experienced the institute program, and was administered a post-test. Section 2 was pre-tested, experienced the institute program, and did not receive the post-test. The results of pre- post-test scores on criterion measures for each institute topic, and total scores of all measures are shown in Table 1. (Copies of pre- and post-tests for each topic are contained in Appendix F.)

Table 1

Means, Standard Deviations, Ranges, and Total Possible Points of All Separate Criterion Scores and Total Test Scores for Pre- and Post-test Measures.

Criterion Measure		N	Mean	Standard Deviation	Range	Total Points Possible
Behavioral Objectives	Pre	24	31.29	11.16	7-47	60
	Post	25	50.88	6.41	35-58	
Objective Analysis	Pre	24	10.67	1.86	7-14	18
	Post	25	13.84	2.51	6-17	
Instructional Development	Pre	24	15.08	4.53	10-22	44
	Post	25	31.12	6.74	17-41	
Measurement	Pre	24	12.52	2.65	8-16	44
	Post	25	24.32	4.05	15.29	
Experimental Design	Pre	22	1.45	1.77	0-6	7
	Post	23	5.98	1.25	2-7	
Data Analysis I	Pre	24	6.50	2.52	1-11	20
	Post	25	17.48	2.20	10-19	
Data Analysis II	Pre	24	1.58	2.94	0-8	16
	Post	24	12.71	2.50	5-15	
Total, all Measures	Pre	22	79.38	19.05	41-115	209
	Post	22	156.75	18.53	104-179	

Inspection of Table 1 reveals that post-test mean scores were higher than pre-test means in all cases. Although mean scores were not comparable between criterion measures, the smallest relative mean gain occurred in the Objective Analysis Section; whereas the greatest relative mean gain resulted in the Data Analysis II Section. Tests of significance were not made since the study did not involve hypothesis testing; however, the size of differences between means for nearly all measures was sufficient to indicate that desirable changes in behavior did occur.

Evaluation 2: Individual Written Evaluation of the Institute.

The second form of evaluation required participants, at the close of the institute, to complete an evaluation form containing five broad questions. Participants were requested to (1) rate the institute "warm blanket" services -- housing, food, transportation,

etc. --, (2) suggest improvements to the weekly schedule -- balance between group and independent study, time for discussion, and sequence of activities, (3) rate each topic presentation, (4) react to the idea of attending a research training institute, and (5) comment on anything in general. A copy of the evaluation form is contained in Appendix G.

Results of the first item indicated that all "warm blanket" services were, in general, good. Suggested improvements were varied and mostly personal in nature. One suggested improvement mentioned by several was to provide air condition in the dorm -- to make "ole hot house" more bearable.

Improvements suggested in item two were as varied as the backgrounds and experiences of the participants. Some argued for more group structure, others for more independent study; some wanted more structured discussion time, others less; some suggested different sequences of activities, others not. Outcomes from this item epitomized the variability of individual likes and wants.

Participants rated each institute topic -- the written portion and the group presentation -- on a five point scale. Summaries of those ratings are shown in Table 2.

TABLE 2

Participants' Average Ratings On a 5 Point Scale of Each Institute Topic: Written Materials and Group Presentations

TOPICS	WRITTEN MATERIALS	GROUP PRESENTATION
Orientation	4.1	4.1
Objectives	3.9	3.9
Obj. analysis	3.9	3.5
Measurement	4.1	4.3
Ins. Sys. Devel.	4.1	4.1
Res. Design	4.1	4.1
Data Anal. I	4.1	4.3
Data Anal. II	4.3	4.1
Proposal Writing	4.7	4.1

From the above table it can be seen that participants rated nearly all topics and modes of instruction at about a four point level. One exception was that of the written materials for proposal writing. Ratings for this section averaged 4.7 -- nearly perfect. The high rating given the proposal writing written materials along with other general comments received in the institute suggests that participants were particularly interested in obtaining these materials and felt they were a high priority need in their subsequent proposal writing efforts.

To summarize the results of the fourth item -- reactions to attending a research institute -- several typical comments follow:

"As future research directors in our own institutions, we were made aware of some of the problems in research."

"The institute offers great opportunity to have expert instruction concentrated in depth and supervised practice in applying new skills in each area of research training."

"Provided us valuable material to bring home."

"Your impressive staff challenged and aided us."

"Would like to attend a longer session with more time to assimulate."

"Would recommend to other faculty."

Responses to item five -- general comments -- were varied but, in general, did not offer additional information not already given. Comments ranged from "warm blanket" services, to amplification of topic materials, to elaboration on suggested scheduling alternatives.

Evaluation 3: Group Oral Evaluations of the Institute

The third form of evaluation consisted of a two hour group meeting with participants and staff to summarize and evaluate the institute. Again, as was noted earlier, the most notable outcome from this experience was the wide variance of difference among participants in terms of their opinions about the two weeks training just completed. Areas discussed were the written materials, class presentations, testing, pre-session activity, small group study, topic schedule sequencing, and participant grouping.

Some participants felt that the various sections of the written materials should have more editorial consistency, others argued to keep the individualization of authors. One suggestion commonly agreed upon was the desire to have a common example carried systematically through each section of the written materials. No agreement could be reached, however, regarding what type of example should be used or what discipline should be represented.

Many participants expressed a desire for some form of follow-up for advanced training. Suggestions were made for an advanced institute, a pre-session at the National Convention of the American Educatica Research Association, and short small group regional training sessions by the institute staff to be coordinated, whenever

possible, during any professional trips made to different parts of the country.

General agreement was expressed that more value than just personal skill attainment emerged from the institute. Participants indicated that they acquired broader skills with which to help others at their home institutions in the preparation of proposals and the conduct of instructional research.

GENERAL CONCLUSIONS

On the basis of the evaluations just reviewed and the experience of the staff in carrying out the institute, the following conclusions have been made. Suggested changes, if a similar institute were to be conducted, are offered.

a. Objectives. In general, the evidence supports the conclusion that all objectives of the program were achieved. No major changes in objectives are recommended if the institute were replicated.

b. Content. The content appeared appropriate for the participants in attendance; however, additional attention to individual differences in small group activities would be desirable if a subsequent institute were conducted. The development of diagnostic tests to be administered after participants experience each major topic, is recommended. The assessment of participants' behavior changes resulting from such diagnostic testing would strengthen the system of guiding participants into small group and independent study sessions.

c. Trainees. Selection of the trainees was under the control of the Director of Regional Research Programs, U. S. Office of Education, and, therefore, was not the responsibility of the institute. Although a wide variety of discipline backgrounds and research experiences were combined in the training group, no unusual difficulties emerged. Although no specific measurement of this relationship was made, informal reports from many trainees indicated that desirable benefits accrued as a result of the interactions among such a diverse group.

d. Organization. Although participants differed in their opinions about length of program, the conclusion drawn is that two weeks was about the right amount of time to accomplish the objectives of the institute. If the program were to be conducted again, more detailed instruction to participants in their use of study time would perhaps be desirable. For example, although it was clearly announced at the orientation session that all trainees were free to do what

they felt was most helpful during the half day time periods devoted to small group study, few did anything different than attend the small groups to which they were assigned; yet several participants expressed a desire to have devoted this time period to other study efforts. It appears necessary to explicitly set forth various study alternatives available to trainees and counsel them into which alternative they wish to select.

e. Financial Summary.

		Budgeted	Expended*
a.	Trainee Support		
	(1) Stipends and Travel	$ 17,500	$ 17,120
	(2) Dependency allowance	-0-	-0-
b.	Direct Costs		
	(1) Personnel	7,500	7,000
	(2) Supplies	600	460
	(3) Equipment	-0-	-0-
	(4) Travel	300	230
	(5) Other	600	460
c.	Indirect Costs	2,120	2,000
	TOTAL	$ 28,620	$ 27,270

* (Not necessarily final figures)

As it turned out, the budget was sufficient for the institute. However, if we had not had several cancellations from participants living a long distance away, we would have been overexpended in participant travel by approximately $2,500.

Appendix A

Institute Participant

Appendix A

Institute Participants

Section I

Albritton, Mr. Robert Oregon College of Education	342 S. Monmouth Monmouth, Oregon
Andersen, Dr. Holger W. Le Moyne College	3587 Cowden Avenue Memphis, Tennessee 38111
Sister Francis de Sales Boran Marymount College	2807 No. Glebe Road Arlington, Virginia 22207
Gemmell, Kathleen Miss U. S. Office of Education (Participant Observer)	300 S. Garfield St. Arlington, Virginia 22204
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Jenks, Mr. John D. Wisconsin State University at LaCrosse	2107 Main St. LaCrosse, Wisconsin 54601
Sister Mary Joela Madonna College	36600 Schoolcraft Livonia, Michigan 48150
Johnson, Dr. Norman C. N. C. College at Durham	928 Plum St. Durham, North Carolina 27701
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Kozma, Dr. Ernest Baldwin-Wallace College	8081 Worthington Pk. Strongsville, Ohio 44136
Lightsey, Dr. Ralph Georgia Southern College	P. O. Box 731 Statesboro, Georgia 30458
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Roberts, Mr. Barry University of Dayton	84 Tuxworth Road Centerville, Ohio 45459
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Sefain, Dr. Naim A. SUNY-College at Fredonia	59 College Street Fredonia, New York 14063

Section I Continued

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Steward, Dr. Clifford Claremont Colleges	Claremont Colleges Claremont, California 91711
Stoneman, Dr. David M. Wisconsin State	1226 W. Kay St. Whitewater, Wisconsin 53190
Swegan, Dr. Donald B. Baldwin-Wallace College	164 E. Center St. Berea, Ohio 44017
Todd, Miss Leona E. Oregon College of Education	2015 Wallace Rd., N.W. Salem, Oregon 97304
Van Cleve, Dr. William J. St. John's University	1128 24th Avenue, No. St. Cloud, Minnesota 56301
Welton, Mr. Richard Southern Oregon College	810 Leonard St. Ashland, Oregon 97520
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Knuth, Dr. William San Francisco State College	Creative Arts Department San Francisco State College San Francisco, California

Section II

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Beck, Mr. Robert F. Wisconsin State University at River Falls	515 E. Cascade River Falls, Wisconsin 54022
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Fortune, Dr. Jimmie C. Memphis State University	4872 Leven Memphis, Tennessee 38117
Sister Caroline Mary Gillin Mercey College of Detroit	8200 W. Outer Dr. Detroit, Michigan 48219
Jacobson, Mr. John R. College Center of Finger Lakes	22 W. 3rd St. Corning, New York
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McAllister, Mr. James Monmouth College	1133 E. Broadway Monmouth, Illinois 61462
Melville, Dr. George Knox College	1390 Spruce Galesburg, Illinois 61401
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Section II Continued

Nothsis, Mr. John A. Yankton College	1017 Mulberry Yankton, South Dakota 57078
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Rickards, Montana, Mrs. Oregon College of Education	Oregon College of Education Monmouth, Oregon 97361
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Shapiro, Dr. Jacob Le Moyne College	377 Green Acres Road Memphis, Tennessee 38117
Shute, Dr. Marlow Bennett College	1115 Tuscaloosa St. Greensboro, North Carolina 27406
Spanjer, Dr. R. Allen Portland State College	1390 S.E. Blakeney Beaverton, Oregon 97005
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Regional Research Program Observers That Attended The Institute

Director of Regional Research Program
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Appendix B
1st Mailing
Administrative Information Bulletin

Appendix B

First Mailing

ADMINISTRATIVE INFORMATION BULLETIN

National Research Training Institute

for

Participants in Consortium Research Development (CORD) Projects

to be conducted by

THE TEACHING RESEARCH DIVISION

Oregon State System of Higher Education

on the campus of the

Oregon College of Education, Monmouth, Oregon

August 20 through September 1, 1967

July 5, 1967

CONTENTS

1. Introduction

This bulletin contains information for personnel participating in the National Research Training Institute to be conducted by the Teaching Research Division of the Oregon State System of Higher Education on the campus of the Oregon College of Education in Monmouth, Oregon, from August 20 through September 1, 1967. The purpose of the institute is to provide a specialized educational research training program for college professors who are currently participating in a CORD project.

The first week of the institute will be devoted primarily to applying new knowledge learned from research to the improvement of instruction, i.e., to developing new instructional systems. The second week will be devoted primarily to planning and conducting research on those instructional systems and reporting the research results.

Much planning and preparation has gone into the development of a program that hopefully will provide for each participant the kind of experience that will be most relevant in improving instruction in his discipline. The Teaching Research Automated Classroom (TRAC-facility) will be utilized for some instruction and this will require dividing the institute into two major sections. Further sectioning will be done on other bases. To assist in this task and other administrative concerns it is essential that you complete Appendix D (attached) and return it in the enclosed envelope immediately (before July 15, 1967).

2. Selection

Participants were selected by the Director, Regional Research Program, United States Office of Education. The Teaching Research Division has no authority in this matter. All questions with reference to initial acceptance in the program or in changes in personnel to attend the National Research Training Institute should be directed to Dr. Paul Messier, Director, Regional Research Program, Department of Health, Education, and Welfare, Office of Education, Washington, D. C. 20202.

Participants are from Wisconsin, Virginia, New York, Oregon, Tennessee, Georgia, North and South Dakota, North Carolina, Oklahoma, Michigan, Ohio, Illinois, Minnesota, and Iowa. A list of participants is enclosed as Appendix C in the event that you have occasion to make personal pre-conference contacts.

3. Housing

Please see Appendix B. If you desire dormitory accomodations, please complete the enclosed application (attached to Appendix B) and return it with your check to the Director of Dormitories, Oregon College of Education, Monmouth, Oregon. Participant wives or husbands wishing dormitory units should also complete an application and return it with a check as above. There are two motels in Monmouth (Coopers and Vans) available to those participants who plan to bring dependent children. Both motels are not elegant but quite acceptable. Please write directly to these motels for reservations (Coopers Motel, Monmouth, Oregon, 97361, or Vans Motel, Monmouth, Oregon, 97361).

4. Transportation

Each participant will be reimbursed for one round trip between his home base and point of entry (Portland, Salem, or Monmouth, as explained below) at the rate of 8¢ per mile to be computed from standard auto mileage charts regardless of mode of transportation. We expect to have your travel reimbursement check available upon your arrival. Surface transportation will be provided from Portland or Salem to Monmouth Sunday, August 20th. It is important that you provide us with the mode of transportation as well as arrival time, point of entry, and train or flight number as soon as possible (see Appendix D). Transportation in Monmouth will be provided when necessary.

5. General Information

a. Mail Service: Mail is delivered to the college twice daily, 8 a.m. and 10 a.m., and is picked up from the college twice daily, 10 a.m. and 2 p.m. The Monmouth City Post Office is open for window service until 5:15 p.m. and dispatches its last daily outgoing mail at 5:30 p.m. Your mail address while here will be: Arbuthnot Hall, Oregon College of Education, Monmouth, Oregon, 97361.

b. Telephone: All calls, local and long-distance, made from Arbuthnot Hall (dorm) must use pay phones. Local and long-distance reverse charge business calls can be made from college telephones.

c. Laundry Service: Arbuthnot Hall provides pay washers and dryers. Monmouth also has an excellent laundry and dry-cleaning establishment as well as a self-service laundromat.

d. Banking Services: Monmouth has the United States National Bank of Oregon to accomodate your banking needs. A roster of Institute participants has been given to the bank to assist with your identification. However, an officer of the bank suggests that participants might bring some form of ID from their local banks as an added precaution; BankAmericards will serve equally well.

6. Stipends

Participant stipends will be $75.00 per week payable August 25th and September 1. No dependency allowance is allowed.

7. Food Service

All college meal and snack facilities will be closed during the dates of the Institute. Therefore, special arrangements have been made for meal service at two local restaurants, located a short walking distance from the campus. The food and service is excellent at both of these establishments as well as conservative in price. One features a buffet style that has been a favorite of past institute participants.

8. Clothing

During August and September the weather conditions in Oregon "normally" are most pleasant, with very little or no rain, warm to hot days, cool nights. You should bring clothing to keep you cool and comfortable. Institute dress will be casual; however, one social event will require tie and suit coat or sport jacket (Military Officer's Club). Don't forget

a sweater or light jacket for evenings - it cools off! If you plan to visit the coast, bring clothing to accomodate gusty cool, moist air. A nylon jacket or similar windproof apparel is most comfortable.

9. Recreation

The Pacific Northwest has infinitely varied scenery. Lush meadowlands lead to snowy mountain tops rising from green foothills, parklike valleys, and deep canyons. The coastal scenery is especially beautiful. Golfing, swimming, surfing, fishing, skiing, hiking, tennis, touring are all available. Indoor activity is available at the college gymnasium, and Monmouth has a city park with children's play equipment.

During the mid-point weekend of the Institute, for those interested, trips will be planned to both the coast and the mountains. Bring any necessary gear or equipment you desire. Many recreational equipment items can be rented here (golf clubs, surf and scuba equipment, skiing equipment, fishing equipment, etc.). Another packet will be mailed in the near future containing various brochures more fully describing Oregon's recreational and geographical features.

10. Questions

For any questinns you may have or information you may seek, please write or call: Dr. Jack V. Edling, Director
TEACHING RESEARCH DIVISION
Monmouth, Oregon 97361

Telephone: Area Code 503, No. 838-1220, Ext. 391

11. Social Events

Two social events have been planned to which all participants and their guests are invited. On Monday night, August 21, 1967, the Officer's Club at the Adair Air Force Base, located only a few miles from Monmouth, has been reserved for those who would like to enjoy a unique social event. Transportation will be provided by the Institute. The Officer's Club has a large outdoor charcoal grill where each person can select and grill a magnificent New York cut steak to his own exact specifications (all of the other elements of the meal are prepared by the Club so you are assured of something to eat)!! The setting is ideal, and music and other entertainment will be provided. The charge is $3.00 payable at the time of checking in and will be in lieu of the evening meal which those not attending will purchase at a Monmouth restaurant. Bar service is available at the Club.

On Thursday evening, August 31, the last evening before the termination of the Institute, another social evening has been planned at a State Park, also just a few miles from Monmouth. The local Junior Chamber of Commerce specializes in a chicken barbeque with trimmings for approximately $1.50. This also is in lieu of the regular evening meal which could be purchased at a local restaurant for those who do not desire to attend. Transportation will be provided by the Institute. Entertainment details will be planned in cooperation with Institute participants. In order to make reservations, we are asking that you indicate whether you desire to attend these events on the enclosed Appendix D and return it to us at your very earliest convenience.

Appendix A

Tentative Schedule for the Institute

(Final program and self-study materials will be issued in orientation session)

Sunday August 20	All participants to be paid stipends are expected to arrive on Sunday, Aug. 20. Registration and dormitory checkin 8 a.m. to 10 p.m.		
	8:00 - 11:30 a.m.	1:00 - 5:00 p.m.	7:00 - 10:00 p.m.
Monday August 21	Section I-Orientation	Independent Study - Specifying Objectives	Social Event
	Section II - Pre-Session Evaluation	Orientation	Social Event
Tuesday August 22	Section I - Practice Session-Specifyg Obj's	Small Group Session - Specifying Objectives	Independent Study - Test Construction
	Section II - Ind.Study- Specifying Objectives	Practice Session - Specifying Objectives	Independent Study Test Construction
Wednesday August 23	Section I-Prac. Sess.- Test Construction	Small Group Session - Test Construction	Ind.Study-Objective Anal. & Instr. Spec's
	Section II-Small Grp. Sess.-Specifying Obj's	Practice Session - Test Construction	Ind. Study-Objective Anal. & Instr. Spec's
Thursday August 24	Section I-Prac.Session- Obj.Anal.& Instr.Spec's	Small Grp. Session - Obj.Anal.&Instr.Spec's	Ind. Study - Instr. Systems Development
	Section II-Small Grp. Sess.-Test Construction	Prac.Sess.-Objective Anal. & Instr. Spec's	Ind. Study - Instr. Systems Development
Friday August 25	Section I-Prac.Sess.- Instr. Systems Devel.	Small Grp. Session - Instr. Systems Dev.	Independent Study - Research Design
	Section II-Sml.Grp.Sess. Obj.Anal.& Instr.Spec's	Practice Session - Instr. Systems Dev.	Independent Study - Research Design
Saturday August 26	Trips to Pacific Coast or Cascade Mountains, as desired.		
Sunday August 27	Free Time. Individual arrangements.		

	8:00 - 11:30 a.m.	1:00 - 5:00 p.m.	7:00 - 10:00 p.m.
Monday August 28	Section I-Prac.Sess.- Research Design	Small Group Session - Research Design	Independent Study - Data Analysis I
	Section II-Small Grp. Sess.-Instr.Sys.Dev.	Practice Session - Research Design	Independent Study - Data Analysis I
Tuesday August 29	Section I-Prac.Sess.- Data Analysis I	Small Group Session- Data Analysis I	Independent Study - Data Analysis II
	Section II-Small Grp. Sess.-Research Design	Practice Session - Data Analysis I	Independent Study - Data Analysis II
Wednesday August 30	Section I-Prac.Sess.- Data Analysis II	Small Group Session Data Analysis II	Ind.Study-Proposal & Report Writing
	Section II-Small Grp. Sess.-Data Anal. I	Practice Session - Data Analysis II	Ind.Study - Proposal & Report Writing
Thursday August 31	Section I-Prac.Sess. Prop.& Rept.Writing	Small Grp.Sess.-Prop. & Report Writing	Social Event
	Section II-Sml.Grp. Sess.-Data Anal. II	Prac.Sess.- Proposal & Report Writing	Social Event
Friday Sept. 1	Section I-Final Criterion Meas.	Summary & Evaluation of Institute	
	Section II-Sml.Grp. Sess.-Proposal & Report Writing	Summary & Evaluation of Institute	

Participants may make travel departure schedules after 3:00 p.m. Friday. Transportation to Portland and Salem terminals will be provided.

Appendix B

Dormitory Information

Oregon College of Education
Monmouth, Oregon

1. Room payments for the two weeks ($42.00) must be PAID IN FULL - IN ADVANCE. (Note that this amount covers room only.) Please complete attached form and mail with your check.
2. A late payment penalty of $1.00 per day, but not to exceed $5.00, will be assessed those not meeting payment schedules.
3. Room reservation deposits should be mailed to the Director of Dormitories, Oregon College of Education.
4. No refund of room charges will be made unless the Participant withdraws from the Institute.
5. Participants will be housed in Arbuthnot Hall, located at the north end of the campus (see attached photo). On arrival, participants must sign a registration card with the attendant on duty, and must check out in like manner at termination of your dormitory occupancy. Men and women will be housed on separate floors. (No fraternization!!!)
6. At time of registration, a deposit of $1.00 must be made for your dorm room key. The amount will be refunded on return of the key at termination of your room occupancy.
7. Sheets, pillowcases, pillows, mattresses and pads, and a blanket will be provided, but you should arrange to bring along such items as study lamps, towels, clocks, bed spreads and other necessities for your individual requirements.

8. No cooking of any type will be allowed in dormitory rooms, other than in regular kitchen areas provided for this purpose. Therefore such items as coffee pots, soup makers, hot plates, griddles, corn poppers, or other cooking appliances, electric or other, will not be allowed in individual rooms.

9. Dormitory reservations will be accepted for adults only. If you have any questions regarding your dormitory living, feel free to contact the Director of Dormitories at offices located in the Student Center building on the Oregon College of Education campus (Ph. 838-1220, Ext. 311).

Appendix C

National Research Training Institute Participants

Participant at Contract Expense	Summer Address*
Miss Mary Jo Buggs Wisconsin State Univ. at Stevens Point	802 Linwood Avenue Stevens Point, Wisconsin
Mr. John D. Jenks Wisconsin State Univ. at LaCrosse	2107 Main Street LaCrosse, Wisconsin
Mr. Patrick Monahan Wisconsin State Univ. at Whitewater	202 State Street Madison, Wisconsin
Dr. David M. Stoneman Wisconsin State Univ. at Whitewater	1226 W. Kay Street Whitewater, Wisconsin
Miss Veda Ponikar Stout State University	Room 14, Harvey Hall Stout State University Menomonie, Wisconsin 54751
Dr. John A. Oostendorp Wisconsin State Univ. at River Falls	303 N. Dallas River Falls, Wisconsin 54022
Mr. Francis T. Casey Marymount College	1228 Providence Terrace McLean, Virginia 22101
Sister Frances de Sales Boran Marymount College	Marymount College Arlington, Virginia
Dr. Robert M. O'Clair Manhattanville College of the Sacred Heart	240 W. Chester Avenue Port Chester, New York
Mr. Frank Glazer Bennett College	Bennett College Millbrook, New York
Mr. Richard Welton Southern Oregon College	Southern Oregon College Ashland, Oregon 97520
Mr. David E. Kerley Eastern Oregon College	Eastern Oregon College LaGrande, Oregon 97850
Miss Leona E. Todd Oregon College of Education	Oregon College of Education Monmouth, Oregon 97361
Mr. R. Allen Spanjer Portland State College	Portland State College Portland, Oregon 97207
Dr. William J. Wade King College	244 Edgewood Road Bristol, Tennessee
Mr. H. M. Stanton Lane College	Lane College Jackson, Tennessee

* Best address available

Participant at Contract Expense	Summer Address*
Mrs. A. M. Miller Lane College	Lane College Jackson, Tennessee
Dr. Jacob Shapiro LeMoyne College	377 Greenacres Road Memphis, Tennessee 38117
Mr. H. Anderson LeMoyne College	Dept. of Psychology University of Wisconsin Madison, Wisconsin
Dr. Eugene Lee Emory University	2967 Appling Way Chamblee, Georgia 30005
Dr. John Downes Emory University	1995 Azalea Circle Decatur, Georgia
Mr. Phillip H. Coffman Jamestown College	Route 1 Jamestown, North Dakota
Mr. John A. Notheis Yankton College	1017 Mulberry Yankton, South Dakota
Miss Mary Catherine Ahearn Mary College	1004 17th Avenue Menominie, Wisconsin
Dr. F. G. Shipman North Carolina College at Durham	1029 Akron Avenue Durham, North Carolina
Dr. Norman C. Johnson North Carolina College at Durham	928 E. Lenoir Street Durham, North Carolina
Dr. King V. Cheek Shaw University	228 E. Lenoir Street Raleigh, North Carolina
Dr. Marlowe Shute Bennett College	1115 Tuscaloosa Street Greensboro, North Carolina
Dr. Lafayette Parker Winston-Salem College	2016 Lincoln Avenue Winston-Salem, North Carolina
Dr. W. A. Gaines St. Augustine's College	1418 Oakwood Avenue Raleigh, North Carolina
Dr. Donald Nasca SUNY, College at Brockport	34 Lynnwood Drive Brockport, New York
Dr. Naim A. Sefein SUNY, College at Fredonia	59 Cottage Street Fredonia, New York 14063
Dr. Milton K. Erway Elmira College	418 Euclid Avenue Elmira, New York
Dr. John J. Coffelt Oklahoma State Regents for Higher Education	Oklahoma State Regents for Higher Education Oklahoma City, Oklahoma

* Best address available

Participant at Contract Expense	Summer Address*
Dr. William F. Clipson Troy State College	201 Highland Avenue Troy, Alabama
Dr. Ralph Lightsey Georgia Southern College	P. O. Box 731 Statesboro, Georgia
Dr. James Colmey Memphis State University	4901 Roane Road Memphis, Tennessee 38117
Dr. Jimmie C. Fortune Memphis State University	4872 Leven Memphis, Tennessee 38118
Mr. Lewis W. Jones Fisk University	Burrus Hall Fisk University Nashville, Tennessee
Sr. Caroline Mary Gillsen Mercy College of Detroit	Mercy College of Detroit Detroit, Michigan
Sr. Mary Joela Madonna College	Madonna College Livonia, Michigan
Mr. Wilbur Showalter University of Dayton	University of Dayton Dayton, Ohio
Mr. John M. Hamilton Antioch College	Antioch College Yellow Springs, Ohio
Dr. George Melville Knox College	Knox College Galesburg, Illinois
Mr. James McAllister Monmouth College	Monmouth College Monmouth, Illinois
Miss Ruth Sproat Lake Forest College	Lake Forest College Lake Forest, Illinois
Dr. William J. Van Cleve St. John's University	St. John's University Collegeville, Minnesota
Mr. Richard Cole Luther College	Luther College Decorah, Iowa
Dr. Evan Lloyd Cleveland Commission oh Higher Education	Cleveland Commission on Higher Education Cleveland, Ohio
Dr. Donald Sweagon Baldwin-Wallace College	Baldwin-Wallace College Berea, Ohio

* Best address available

At Own or Institutional Expense	Summer Address*
Mr. Lee A. Burress, Jr. Wisconsin State Univ. at Stevens Point	208 Main Street Stevens Point, Wisconsin
Mr. Robert F. Beck Wisconsin State Univ. at River Falls	Panama, Nebraska
Mr. Robert Albritton Oregon College of Education	342 S. Monmouth Monmouth, Oregon
Dr. Alice Knuth Oregon College of Education	Oregon College of Education Monmouth, Oregon
Mrs. Montana Rickards Oregon College of Education	Oregon College of Education Monmouth, Oregon
Mr. Marion Rossi Oregon College of Education	1220 S "D" Street Independence, Oregon
Dr. Kenneth Walker Oregon College of Education	346 Walnut Drive Monmouth, Oregon
Dr. Lloyd O'Connor Eastern Oregon College	Eastern Oregon College LaGrande, Oregon
Dr. John McClain Clarion State College	Clarion State College Clarion, Pennsylvania
Mr. Ralph D. Schmid Emory University	4190 Carrollwood Drive, Rt. 4 Stone Mountain, Georgia 30083
Dr. Dan Sillers Jamestown College	Jamestown College Jamestown, North Dakota
Miss Mary M. McLaughlin Mary College	Mary College Bismarck, North Dakota

*Best address available

Appendix D

Please complete this form and return it immediately in the enclosed envelope. The information will be used to assist the staff in planning the Institute and preparing travel and stipend checks.

Name _____ ( ) Male ( ) Female

Address _____
(Street No. (City) (State) (Zip)

Social Security Number _____

1. In what area of emphasis (discipline) was your graduate training?

   _____

2. Part of the training in the Institute will employ terminologies associated with psychology. Have you ever had a course in psychology? ( ) yes ( ) no
3. Have you ever been involved in a curriculum planning activity different from that of preparing your own course syllabus? ( ) yes ( ) no
4. Have you ever written a research proposal related to the improvement of instruction and submitted it for consideration to a funding agency? ( ) yes ( ) no
5. If yes to the last question, was it funded? ( ) yes ( ) no
6. During the mid-weekend (August 26-27, for those interested, we are planning trips to the coast and to the mountains. Which would you prepare to visit? ( ) coast ( ) mountains ( ) neither
7. Two evening social events have been planned. Please indicate if you desire to attend. Spouses are invited.
   a. Steak barbecue, August 21, @ $3.00 each. ( ) yes ( ) no
   b. Chicken barbecue, August 31, @ $1.50 each ( ) yes ( ) no

8. The Institute will provide transportation to Monmouth for all participants arriving in Portland or Salem on August 20. To help us coordinate this transportation, please indicate (1) your mode of travel (plane, train, car); (2) your arrival place (Portland, Salem, Monmouth); and (3) your intended time of arrival:

   (1) Mode: _____ (Please include flight number)

   (2) Place: _____

   (3) Time: _____

9. What lodging arrangements are you planning? ( ) Arbuthnot Hall

   ( ) Motel in Monmouth ( ) Other _____

Appendix C

3rd Mailing

Appendix C

3rd Mailing

Teaching Research Division
OREGON STATE SYSTEM OF
HIGHER EDUCATION
Monmouth, Oregon

Dear

According to the information received you will be arriving in _____ by _____ on _____ at _____. If you are arriving in Portland at the airport on Sunday a receptionist will be there to greet you and inform you of transportation arrangements to Monmouth. The receptionist will be located in the main ticket lobby of the terminal building.

The Dormitory check in time is Sunday at _____. If you arrice in Portland prior to Sunday you will be responsible for securing your own accomodations. Roomettes at the airport are available and transportation will be provided to Monmouth on Sunday.

If your plans of arrival have changed from those indicated above, please inform us so we can plan for your transportation to Monmouth.

Sincerely,

Patrick R. Mahoney
Administrator

PRM:bjo

Appendix D

4th Mailing

Appendix D

4th Mailing

MEMO DATE: July 31, 1967

TO: National Research Training Institute Participants

FROM: Patrick Mahoney, Administrator
Teaching Research Division

Our files indicate that you have not yet supplied us with your Social Security number as requested earlier this month. If you desire to receive travel and stipend checks during the Institute, it is imperative for us to receive this information by August 4, 1967.

Thank you.

PRM/da

Appendix E

Schedule for the Institute

Appendix E

Schedule for the Institute

(Self-study materials will be issued in orientation session)

Sunday August 20	All participants to be paid stipends are expected to arrive on Sunday, Aug. 20. Registration and dormitory checkin 8 a.m. to 10 p.m.		
	8:00 - 11:30 a.m.	1:00 - 5:00 p.m.	7:00 - 10:00 p.m.
Monday August 21	Section I-Orientation	Independent Study - Specifying Objectives	Social Event
	Section II - Pre-Session Evaluation	Orientation	Social Event
Tuesday August 22	Section I - Practice Session-Specifyg Obj's	Small Group Session - Specifying Objectives	Independent Study - Anal. & Instr. Spec's
	Section II - Ind.Study- Specifying Objectives	Practice Session - Specifying Objectives	Independent Study - Anal. & Instr. Spec's
Wednesday August 23	Section I-Prac. Sess.- Anal. & Instr. Spec's	Small Group Session - Anal. & Instr. Spec's	Ind.Study-Objective Systems Development
	Section II-Small Grp. Sess.-Specifying Obj's	Practice Session - Anal. & Instr. Spec's	Ind. Study-Objective Systems Development
Thursday August 24	Section I-Prac.Session- Systems Development	Small Grp. Session - Obj. Systems Devel.	Ind. Study - Instr. Measurement
	Section II-Small Grp. Sess.- Anal.& In. Spec's	Prac.Sess-Objective Systems Development	Ind. Study - Instr. Measurement
Friday August 25	Section I-Prac.Sess.- Measurement	Small Grp. Session - Measurement	Independent Study - Research Design
	Section II-Sml.Grp.Sess. Systems Development	Practice Session - Measurement	Independent Study - Research Design
Saturday August 26	Trips to Pacific Coast or Cascade Mountains, as desired.		
Sunday August 27	Free Time. Individual arrangements.		

	8:00 - 11:30 a.m.	1:00 - 5:00 p.m.	7:00 - 10:00 p.m.
Monday August 28	Section I-Prac.Sess.-Research Design	Small Group Session - Research Design	Independent Study - Data Analysis I
	Section II-Small Grp. Sess.-Measurement	Practice Session - Research Design	Independent Study - Data Analysis I
Tuesday August 29	Section I-Prac.Sess.-Data Analysis I	Small Group Session-Data Analysis I	Independent Study - Data Analysis II
	Section II-Small Grp. Sess.-Research Design	Practice Session - Data Analysis I	Independent Study - Data Analysis II
Wednesday August 30	Section I-Prac.Sess.-Data Analysis II	Small Group Session Data Analysis II	Ind.Study-Proposal & Report Writing
	Section II-Small Grp. Sess.-Data Anal. I	Practice Session - Data Analysis II	Ind.Study-Proposal & Report Writing
Thursday August 31	Section I-Prac.Sess.-Prop. & Rept.Writing	Small Grp.Sess.-Prop. & Report Writing	Social Event
	Section II-Sml.Grp. Sess.-Data Anal. II	Prac.Sess.-Proposal & Report Writing	Social Event
Friday Sept. 1	Section I-Final Criterion Meas.	Summary & Evaluation of Institute	
	Section II-Sml.Grp. Sess.-Proposal & Report Writing	Summary & Evaluation of Institute	

Participants may make travel departure schedules after 3:00 p.m. Friday. Transportation to Portland and Salem terminals will be provided.

Appendix F

Pre- and Post-Tests

I. Behavioral Objectives Test

1. One way in which a written behavioral objective for teaching may differ from a non-behavioral objective is that the behavioral objective always specifies:
   A. Teaching methods
   B. Teacher behavior
   C. Length of a teaching unit
   D. Criteria for measurement.

2. An "objective," as it has been defined for the purposes of writing behavioral objectives, denotes:
   A. A goal that a teacher intends students to accomplish
   B. A desired goal for students to accomplish
   C. A goal for teachers to accomplish in their teaching methods
   D. A goal teachers would like to accomplish with their students

3. Generally, the most valid indications of student behavior that are related to a behavioral objective are those which:
   A. Reflect the objective indirectly
   B. Foster democratic ideals
   C. Allow the student to express himself
   D. Are linked directly with the objective

4. The following verbs might be used in writing behavioral objectives concerning the testing of geography. Which verb would require the least clarification in a behavioral objective?
   A. Understand
   B. Draw
   C. Locate
   D. Identify

5. The following verbs might be used in writing a behavioral objective for teaching high school English. Which verb would require the least clarification of a behavioral objective?
   A. Write
   B. Appreciate
   C. Illustrate
   D. Summarize

6. In a behavioral objective, the audience is:
   A. All the students in a particular grade or level
   B. Some of the students in a particular grade or level
   C. A group of students who are expected to reach the criterion in the behavioral objective
   D. A group of students who behaved as the objective indicates

7. The "conditions" of a behavioral objective specify
   A. The setting in which the students' behavior is to occur
   B. The actions which the teacher will observe
   C. The actions of the leader
   D. Criteria for measuring the student behavior

8. The "behavioral" aspect of a behavioral objective specifies:
   A. Teacher behavior
   B. Pupil behavior
   C. Behavioral conditions
   D. Measurement of behavior

II.

From each of the following groups of objectives select the one objective which is most nearly stated in behavioral terms.

9. A. To teach the students how to build a 3 x 5 inch jewel box...
   B. The student will learn the principles of constructing small boxes...
   C. Each 10th grade shop student will build a 3 x 5 inch jewel box...
   D. To show 10th grade students the proper way to construct a 3 x 5 inch box...

10. A. To remember the names of the ten provinces of Canada in such a way as to...
    B. To learn and remember the names of the ten provinces of Canada...
    C. To name and label the ten provinces of Canada on a blank map showing only...
    D. To appreciate the importance of the ten provinces of Canada...

11. A. To learn the names of the different latitudes of...
    B. To write on an outline map the names of the different latitudes of...
    C. To know the names of the different latitudes of...
    D. To remember how to identify the different latitudes of...

12. A. To teach the fundamentals of diagraming electrical circuits...
    B. To learn the fundamentals of diagraming electrical circuits...
    C. To diagram an electric circuit with all the fundamentals...
    D. To know how to diagram an electrical circuit.

13. A. To define the terms decagon, geometry, and equilateral...
    B. To learn the terms decagon, geometry and equilateral...
    C. To know the concepts decagon, geometry and equilateral...
    D. To understand the terms decagon, geometry and equilateral...

14. A. To explore the identification of various types of vegetation...
    B. To name and describe in writing ten types of vegeation...
    C. To learn the names of ten different types of vegetation...
    D. To know the names of ten different types of vegetation...

15. A. To point out five essential points on a map...
    B. To learn about five essential points on a map...
    C. To know and understand five essential points on a map...
    D. To appreciate the value of knowing five essential points on a map...

III.

From each of the following groups of behavioral objectives select the one that most accurately describes the desired behaviors.

16. A. Locate ten major oceans, bays and straits on an outline map.
    B. Identify ten major oceans, bays and straits on an outline map.
    C. Write the names of ten major oceans, bays and straits on an outline map.
    D. Be able to recognize ten major oceans, bays and straits on an outline map.

17. A. To send a four-word message by Morse code with a blink light.
    B. To send a Morse code message.
    C. To send a message with a blink light.
    D. To send a message using a code.

18. A. Must be able to read Spanish writing.
    B. Must translate Spanish into English verbally.
    C. Must read a Spanish paragraph and translate orally into English.
    D. Must be able to tell the differences between languages.

19. A. Must write a Campbell style library paper of at least ten pages.
    B. Must show an ability to write a library paper.
    C. Must write a Campbell style library paper and finish it.
    D. Must be able to write a paper of ten pages or more.

20. A. Must give 4 examples of methods used to teach biology.
    B. Must write examples of 4 basic instructional techniques in biology.
    C. Must demonstrate an ability to teach biology 4 different ways.
    D. Must show 4 examples of how to teach biology.

21. A. Find the ten largest cities in Canada.
    B. Locate the position of each of the ten largest cities in Canada.
    C. Write a list containing the ten largest cities in Canada in order of size.
    D. Recognize the rank of each of the ten largest cities in Canada.

22. A. Write on an isothermal map with a red pencil accurately.
    B. Find the three spots on an isothermal map with heaviest rainfall.
    C. Mark with a red pencil the 3 areas on an isothermal map with heaviest rainfall.
    D. Locate and recognize areas of heavy rainfall on an isothermal map.

IV.

From each of the following groups of statements select the one which most clearly specifies an acceptable level of performance.

23. A. To write a topic sentence suitable for three given related sentences.
    B. To write a good topic sentence without error.
    C. To write accurately a topic sentence in 3 minutes.
    D. To write a sentence for any topic.

24. A. To obtain a score of 50% on a final test for the course.
    B. Get a score of 50 or more on a 100 item final.
    C. Score better than at least half the class on the final test in this course.
    D. Must be able to answer correctly at least 50% of the items on a 100 question true-false test.

25. A. Write the names of the Canadian provinces on an outline map.
    B. Write the ten provinces on an outline map provided in class.
    C. Write the names of at least 7 of the 10 Canadian provinces in a 5 minute period.
    D. In five minutes write the names of ten provinces on a Canadian map.

26. A. To underline verbs in sentences accurately.
    B. To locate and underline verbs in sentences correctly.
    C. To underline all verbs in 10 sentences in 15 minutes with 2 or fewer errors.
    D. To write all verbs from 10 sentences on a separate sheet of paper.

27. A. By labeling a given outline map of waterways correctly within ½ hour.
    B. By being able to look at an outline map and locate waterways correctly.
    C. By placing waterways on an outline map accurately.
    D. By labeling without error all the waterways on an outline map in 30 minutes.

28. A. Must compute accurately to 1 decimal place at least 20 of 30 given division problems.
    B. Must work out long division problems in such a way as to demonstrate ability.
    C. Must finish accurately an assignment calling for solution of long division.
    D. Must be able to work 20 long division problems in 30 minutes.

29. A. Must be able to keep time to a given record of music.
    B. Must clap hands in 4/4 rhythm through ten bars of "Ten Little Indians."
    C. Must correctly clap in 4/4 rhythm, 4 counts in each measure, to a recording of "Ten Little Indians."
    D. Must be able to demonstrate the ability to keep time to a given record.

V.

From each of the following groups of statements select those which describe a condition under which an objective is to be measured.

30. A. Must be able to identify cones, cylinders, and prisms.
    B. Given a set of geometric shapes
    C. Within a period of 30 minutes with less than 3 errors
    D. Students in a 10th grade Geometry class

31. A. Without the aid of references
    B. 33 correct out of a possible 50
    C. 9th grade geography students
    D. Select the proper location of major rivers.

32. A. Compute the area of a circle.
    B. Without the aid of a slide rule.
    C. Following the proper formulas.
    D. 9th grade algebra students.

33. A. Given a problem of the following class.
    B. Select the correct answer in 60% of the class.
    C. Be able to answer correctly
    D. The entire 12 grade calculus group

34. A. In a period of less than 1 hour
    B. Without the aid of a reference map
    C. Find the location of a major continent
    D. Correctly in 40% of all cases

35. A. By arranging parallel lines on a given map
    B. The student will identify and label
    C. Three of the basic map projections
    D. Will spell all three correctly in a period of 5 minutes

36. A. The student will solve an algebraic equation
    B. Given a linear equation with one unknown
    C. Within a period of 40 minutes
    D. And follow the correct procedures

VI.

Each of the following statements is a part of a behavioral objective. For each statement select the answer which best describes <u>what the statement refers to</u> in the objective.

37. ..within a period of 20 minutes...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

38. ..the first year college geography class...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

39. ..given a set of carpenters tools...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

40. ..without the use of references...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

41. ..all auto repair men in electrical circuiting will...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

42. ..locate and label...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

43. ..with a slide projector and slides...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

44. ..identify the areas containing salt, phosphorous and...
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

VII.

The following behavioral objectives are followed by a list of the four basic requirements necessary for a well stated objective. Select that requirement which you feel is <u>least</u> adequately met, or has been omitted altogether.

45. The sixth grade social studies student, given a slate outline map, will write the names of continents on it.
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

46. Given roughly circular shapes with various arrows indicating direction the student shall select without error in a 5 minute period all those whose arrows indicate a clockwise rotation.
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

47. The ninth grade social studies student will locate and name at least 4 of the 5 climatic areas of Canada.
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

48. By the end of two months they should be able to type 20 words per minute for a period of five minutes with less than three errors.
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

49. On an outline map provided, ninth grade geography students will identify and label the major rivers of the U.S. and Canada.
    A. Audience
    B. Behavior
    C. Condition
    D. Degree

VIII.

In the most of the following statements of behavioral objectives one or more parts have been worded badly or left out completely. For each one select the part or parts you think are inadequate and mark the appropriate response(s).

50. The student should know the names of three mathematicians and contribution of each to geometry.
- A. Audience
- B. Behavior
- C. Conditions
- D. Degree
- E. All of these
- F. None of these

51. Each student will write a topic sentence suitable for three given related sentences.
- A. Audience
- B. Behavior
- C. Conditions
- D. Degree
- E. All of these
- F. None of these

52. The student will identify at least three key steps in the proof of "The square root of two is an irrational number."
- A. Audience
- B. Behavior
- C. Conditions
- D. Degree
- E. All of these
- F. None of these

53. Given a subject which is consistently classified under the same number, to tell from the card catalog where to look for books in that subject. (Give call number as far as it consistently occurs.)
- A. Audience
- B. Behavior
- C. Conditions
- D. Degree
- E. All of these
- F. None of these

54. Students show perception of tonal relationships within a scale (major or minor) by singing with syllables or numbers, a familiar song at a tempo established by the teacher.
- A. Audience
- B. Behavior
- C. Conditions
- D. Degree
- E. All of these
- F. None of these

55. Given twenty notes written on a staff on the board with the bass clef, the class must write down the names of these notes in one minute, as indicated by teacher's start and finish signals, based on teacher's stop watch.

A. Audience
B. Behavior
C. Conditions
D. Degree
E. All of these
F. None of these

56. Given the titles of five books, to locate the names of the authors in the card catalog and write down the authors and titles in acceptable bibliographical form.

A. Audience
B. Behavior
C. Conditions
D. Degree
E. All of these
F. None of these

57. Each student will give the root meaning of the terms "geometry," "quadrilateral," "decagon," "circumference," and "inscribed."

A. Audience
B. Behavior
C. Conditions
D. Degree
E. All of these
F. None of these

58. The student will identify all basic shapes (cylinder, cone, prism, cube, and sphere) used in familiar buildings and structures.

A. Audience
B. Behavior
C. Conditions
D. Degree
E. All of these
F. None of these

59. Spell correctly the following words after a 20 minute oral study period: cat, dog, bull, white, store. This will be a written exam which will last 5 minutes.

A. Audience
B. Behavior
C. Conditions
D. Degree
E. All of these
F. None of these

60. At the end of the two week library session, the pupils will locate, by the use of the card catalog, five books named by the instructor. A maximum time of five minutes will be allowed.

A. Audience
B. Behavior
C. Conditions
D. Degree
E. All of these
F. None of these

Objective Analysis
Criterion Test

1. Which of these is a benefit of pre-design in contrast to extemporaneous design?

   a) early planning is diminished.
   b) restoration of the proper emphasis of teacher functions is facilitated.
   c) student study tasks are more closely monitored.

2. A programed instructional booklet exemplifies:

   a) a superficial choice of terminal objectives.
   b) intentional extemporaneous design of the conditions of learning.
   c) pre-design of the conditions of learning.
   d) a wide range of enabling objectives.

3. Pre-design of instruction is a waste of time.

   a) agree
   b) neutral
   c) disagree

4. Since we do not know enough about the learning process, it is impossible to pre-design instruction to make it more effective.

   a) agree
   b) neutral
   c) disagree

5. The best use of an instructor's time is to know his subject matter thoroughly rather than to worry about how to teach it.

   a) agree
   b) neutral
   c) disagree

6. A student is cheated if he goes to a class when instruction is not pre-designed.

a) agree
b) neutral
c) disagree

7. Pre-design is a poor substitute for extemporaneous design.

a) agree
b) neutral
c) disagree

8. Pre-design will do alot to improve instruction.

a) agree
b) neutral
c) disagree

9. If I had my way, all instruction would be pre-designed.

a) agree
b) neutral
c) disagree

10. In many subjects, extemporaneous design is all right.

a) agree
b) neutral
c) disagree

11. An objective analyses may produce a "good" hierarchy or a "not-so-good" hierarchy. In the long run, a "good" hierarchy is one that

a) has many levels correctly positioned.
b) includes enabling objectives that are easily accomplished by learners.
c) help the instructor in determining what to teach, and in what sequence to teach it.

12. Which of these terms does <u>not</u> describe "enabling objectives"?

a) Basic factual and conceptual knowledge.
b) Component behavior or skills.
c) Lower order competencies.
d) Format of the instruction.

13. After identifying the enabling objectives the next step is to:

a) Identify the type of learning involved in each objective.
b) Develop an instructional environment which will transform learners into graduates who can perform at the specified level.
c) Design instructional sequences that reflect the basic learning principles.

14. After establishing the terminal objective (s) the designer should ask the following question.

a) What level on the hierarchy of learning is this objective?
b) What media will best facilitate reaching this goal without losing the individualized approach?
c) What would the student have to know to perform this objective successfully?
d) What in the world do I do now?

15. Below is a set of objectives. Two of these are enabling objectives. One is a terminal objective.

1) Represent forces and their directions as parts of triangles.
2) Name parts of a triangle.
3) Name horizontal and vertical components of forces as vectors. Which is a terminal objective?

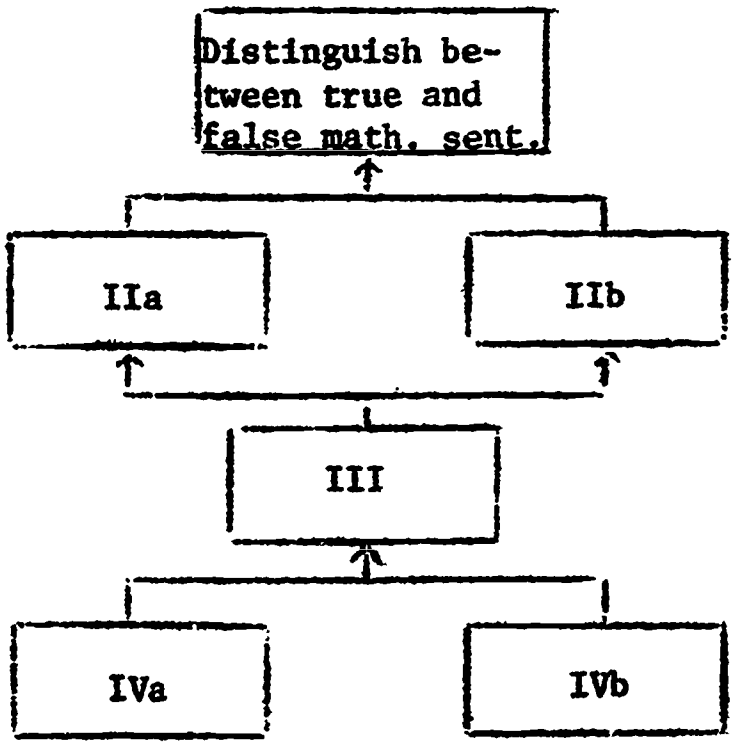
a) 1
b) 2
c) 3

16. Below is a set of objectives. One is a terminal objective and the others are enabling objectives.

1) The student will make a left turn with a standard shift car onto a highway from a stop.
2) The student will discriminate the clutch from the gas pedal and the brake.
3) The student will disengage the clutch.
4) The student will signal for a left turn. Which of the following is a terminal objective for this set?

a) 1
b) 2
c) 3
d) 4

17. In the following objective analysis, choose the correct ordering of enabling objectives.



1. Distinguish between equal and unequal expressions.
2. Perform operations of multiplication and division
3. Recognize false math sentences
4. Recognize the math sentences
5. Recognize true math sentences

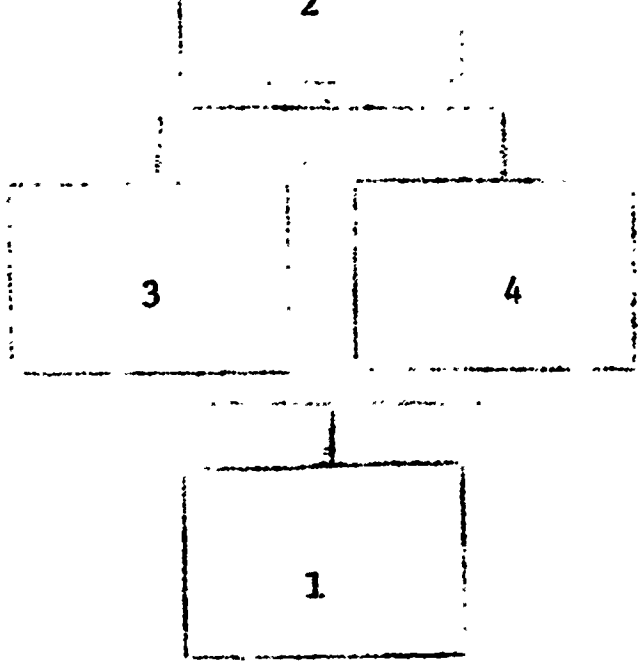
	a.	b.	c.	d.
IIa -	1	2	5	3
IIb -	4	1	3	5
III -	2	4	2	4
IVa -	5	3	4	1
IVb -	3	5	1	2

18. Read the following list of objectives for a math problem.

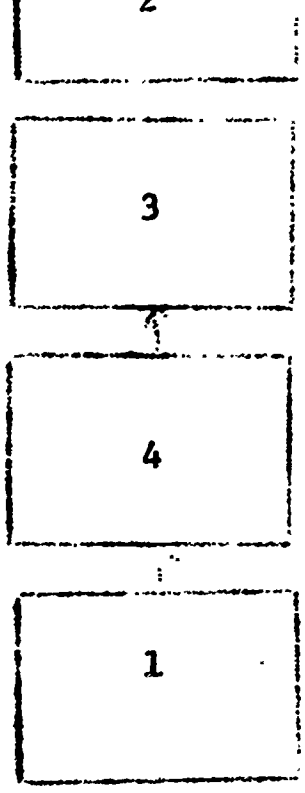
1) Read 1 and 2 place numerals.
2) Multiply a two place whole number by a one place whole number.
3) Multiply a one place whole number by another one place whole number.
4) Add a group of ten (s) to a two place whole number (carrying).

Which diagram is closest to revealing the hierarchy? (The numbers in the squares refer to the numbered objectives above.)

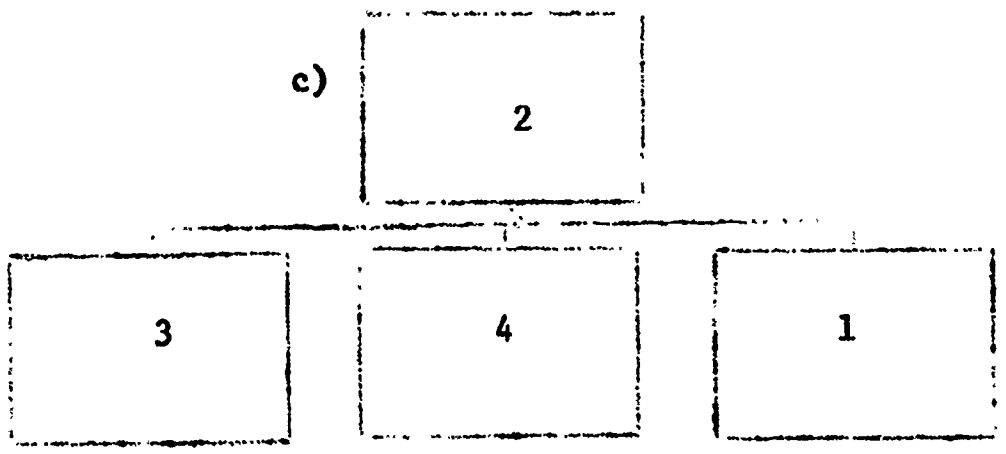
a)



b)



c)



Instructional System Development Test

Name_____

For test items 1 - 8, circle the answer you consider best; then push the same letter button on your response station.

1. The stages defined in the instructional system development section are:

   A. Identify behavioral objectives; determine enabling objectives, produce the instructional product; analyze tryout results.
   B. Produce instructional product; conduct tryout of product; analyze tryout results; modify product; recycle.
   C. Determine enabling objectives; produce instructional product; construct performance measures; conduct tryout; analyze results; recycle.
   D. Produce instructional product; construct performance measures; conduct try-out; analyze results; recycle.

2. The process of systematically following the instructional "blue prints" or specifications is to:

   A. Produce the instructional product
   B. Identify types of learning
   C. Identify behavioral objectives
   D. Conduct try out of the product

3. To translate the analysis of try-out results into changes in the instructional materials is to:

   A. Determine enabling objectives
   B. Produce the instructional product
   C. Recycle the development process
   D. Modify the product

4. Obtaining data from observations and other evaluations of the system such that weaknesses can be identified is to:

   A. Construct performance measures
   B. Determine enabling objectives
   C. Conduct try-out of the product
   D. Analyze try-out results

5. The stage of instructional system development whose purpose is to determine whether the instructional system achieves its objective is the:

   A. Analysis of try-out results
   B. Identification of events that provide conditions of learning
   C. Determination of enabling objectives
   D. Production of the instructional product

6. Recycling is concerned with

   A. Determining enabling objectives for all behavioral objectives
   B. Administering and analyzing performance measures
   C. Modifying all phases of the instructional product
   D. Reduplicating all instructional system development stages

7. The team of specialists considered essential to produce the instructional product includes a:

   A. Content specialist, media specialist, behavioral scientist
   B. Production specialist, measurement specialist, field monitor
   C. Subject matter specialist, field monitor, liaison
   D. Production specialist, try out specialist, measurement specialist

8. The continuum of experience model is most useful in

   A. Constructing performance measures
   B. Interpreting results of the try-out
   C. Deciding what media to use
   D. Deciding how to conduct the try-out

For test items 9 - 16, circle whether the statement is true or false and push the same letter button on your response station.

9. Try-out of the instructional product occurs after all development has been completed.

   A. True
   B. False

10. Try-out of the instructional product should only be conducted with learners of appropriate grade and ability level.

A. True
B. False

11. Analysis of try-out results cannot put more confidence in test results than in comments from try-out subjects.

A. True
B. False

12. High error rates on a criterion test indicate the instructional system has portions that are relatively ineffective.

A. True
B. False

13. Try out following instructional system modification is crucial.

A. True
B. False

14. If it is possible, the same subject should be used to try-out all revisions of a particular segment of the new instructional system.

A. True
B. False

15. Product development requires translating instructional specifications into written statements and/or media forms.

A. True
B. False

16. Incidental details having little to do with the basic content of the new instructional system often interfer with effective learning during the try-out.

A. True
B. False

For test items 17 - 23, circle the answer you consider best; when all persons have completed these items you will be instructed to push the appropriate button on your response station.

17. Analysis of try-outs is used to:

    A. Plan modifications to the system
    B. Determine weak teaching strategies
    C. Determine unrealistic specifications
    D. All of these
    E. None of these

18. To measure the first try-out of a segment of a new instructional system

    A. requires a validated test
    B. Demands small groups
    C. Involves only learners
    D. All of these
    E. None of these

19. Modifications to the new instructional system following analysis are planned with:

    A. The same team of specialists used in production
    B. A new team of specialists
    C. The content specialist only
    D. All of these
    E. None of these

20. The process of producing the instructional product involves

    A. Systematically following the instructional specifications
    B. Translating specifications into prototype
    C. liaison between a team of specialists
    D. All of these
    E. None of these

21. To modify the instructional materials following try-out requires

A. Translating the analysis results into changes in the product
B. Planning with the development specialist team
C. Revising enabling objectives
D. All of these
E. None of these

22. In teaching learners to discriminate between sounds produced from an oboe and an English horn, according to the continuum of experience model, use

A. Direct experience
B. Objective codification (audio)
C. Subjective codification (audio)
D. All of these
E. None of these

23. Results of an analysis of the total instructional system indicates that learners achieved all the stated enabling objectives but did not achieve the terminal objective. Which interpretation would be appropriate

A. Enabling objectives were irrelevant to the terminal objective
B. Enabling objective stated required learning steps that were too big.
C. Enabling objectives were too easy
D. All of these
E. None of these

24. During the first session in the Institute on Specifying Behavioral Objectives you wrote two objectives in the area of your discipline. For this part of the test, copy one of those objectives in the space below and do the following: First, identify <u>one</u> enabling objective necessary to attain the terminal behavior you stated. Then:

A. Describe how you would proceed to produce the instructional segment for that enabling objective.
B. Detail how you would plan to try-out the segment produced. In your discussion give consideration to all pertinent aspects of production and try-out covered in this section.

25. The section that follows contains a series of frames taken from a self-instructional program designed to teach 6th grade students concepts and principles of latitude and longitude. Below the frames is a summary of the error rates for each frame resulting from a tryout of the materials with low, average and high ability students drawn from the 5th, 6th and 7th grades. After studying these materials,

A. Judge which frames were bad for which students. (Consider acceptable frames as those not exceeding an average error rate of 14.)

B. Write a brief statement (approximately 100 words), based on the evidence available, indicating what you think caused the frames to be faulty.

C. Briefly describe the steps you would take next to modify the faulty frames.

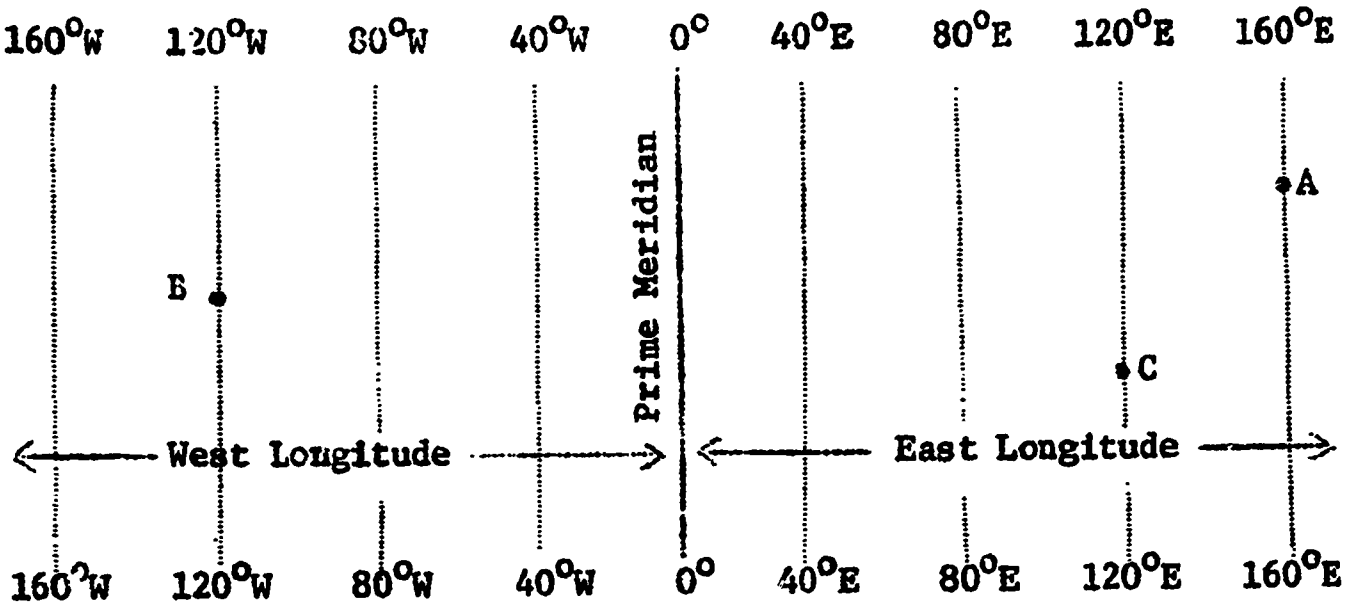


Figure 10

8-30 Look at Figure 10. The longitude of Point A is written_____(?)_____. 160°E

8-31 The longitude of Point B on Figure 10, is written_____(?)_____ 120°W

8-32 The longitude of Point C on Figure 10 is written_____(?)_____ 120°E

8-33 Longitude is __(?)__ - __(?)__ distance or location. east-west

8-34 Longitude lines are numbered from 0 at the _____(?)_____ meridian to __(?) °____. prime; 180°

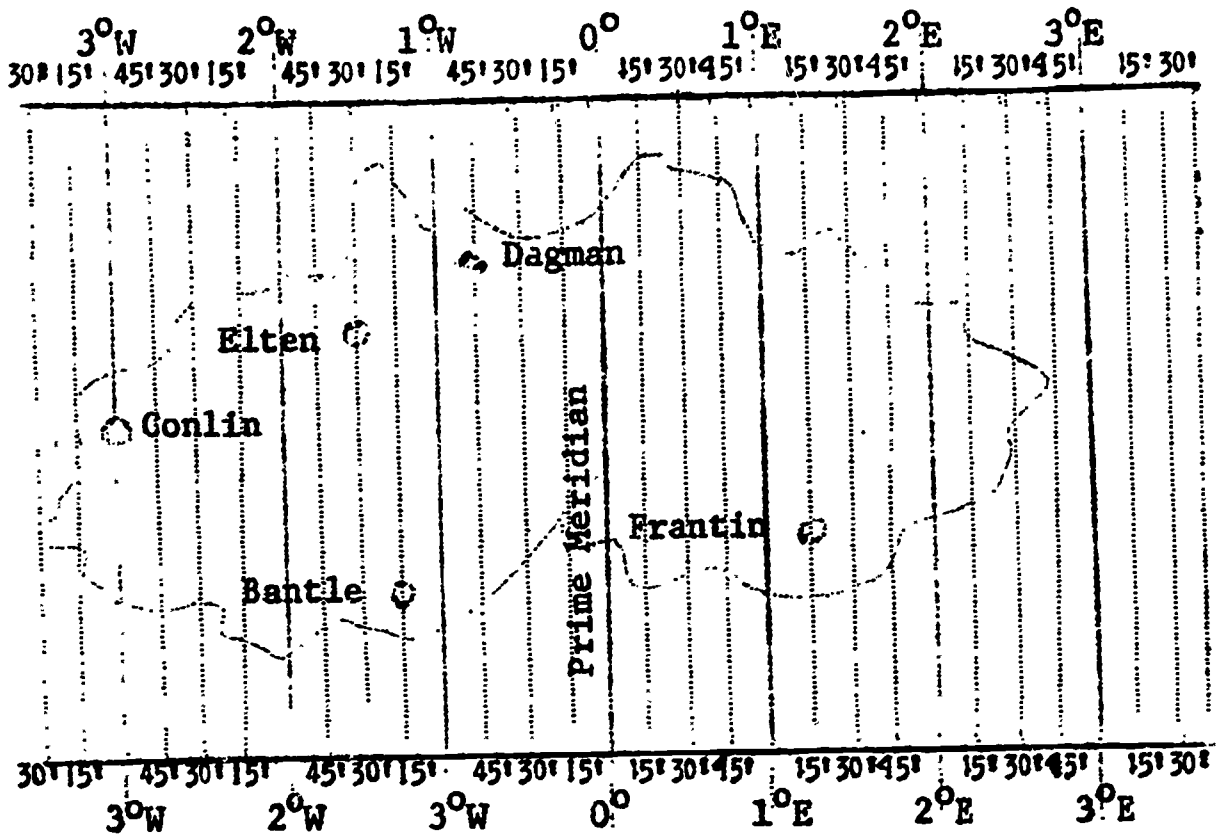


Figure 11

8-35 On Figure 11 we have an imaginary map with with imaginary cities. See if you can read their longitudes. Use Figure 11 for the rest of this set. The longitude of Conlin is (?) ° (?). 3°W

8-36 The longitude of Elten is (?) ° (?) ' (?). 1°30'W

8-37 The longitude of Dagman is (?) ° (?) ' (?) 0°45'W

8-38 The longitude of Frantin is (?). 1°15'E

8-39 The longitude of Bantle is (?). 1°15'W

Error Rates Per Frame by Grade and Ability Level

Frame Number	5 Low N=18	5 Ave. N=16	5 High N=18	6 Low N=9	6 Ave. N=19	6 High N=20	7 Low N=12	7 Ave. N=14	7 High N=5
8-30	22	0	6	11	5	0	0	0	0
8-31	6	6	6	11	0	0	0	0	0
8-32	22	6	0	0	11	5	0	7	0
8-33	22	13	0	11	11	0	0	7	0
8-34	17	19	6	11	11	0	8	0	0
8-35	33	50	28	44	26	5	17	7	0
8-36	39	38	28	44	26	10	25	21	0
8-37	61	31	17	44	32	10	17	0	0
8-38	22	25	11	22	26	5	17	0	0
8-39	33	19	11	44	42	0	8	0	0

A. Identify those frames judged bad and for which students

Bad Frames	Which Students

B. What caused frames to be faulty?

C. What next steps would you take to modify faulty frames?

Test Over Measurement

Part I. Foundations

Items appearing in Part I of the test are designed to assess knowledge that is basic to the use of measurement in instructional systems development and research. In responding to these items place a T in front of the items which are true and an F in front of those which are false.

____ 1. Instructional research and instructional evaluation refer to essentially the same process.

____ 2. Demonstrating the effectiveness of an instructional system in one school setting does not mean that it will be effective in another.

____ 3. The aim of instructional evaluation is to determine whether a particular instructional system brings about the educational outcomes (behavioral objectives) that are intended to derive from it.

____ 4. Persons interested in instructional systems evaluation must become or must rely heavily upon a person competent in measurement in the behavioral sciences.

____ 5. Because of the "inexactness" of measurement in education and the behavioral sciences two or more measures should be used to assess any characteristic or outcome that is being considered in a particular study.

____ 6. The concepts of reliability and validity enter educational measurement only because constant error appears in all such measures.

____ 7. The concepts of the relevance, representativeness and fidelity of items in a measure have as much to do with the problem of constant error as does the concept of "construct" validity.

____ 8. The control of "random" error in measurement is one of the most bothersome and difficult problems that educators face in carrying out instructional research and evaluation.

____ 9. The essential difference between measurement in the physical sciences and the behavioral sciences lies in the fact that physical sciences rely upon <u>direct</u> measurement, i.e. measurement of observable properties, while the behavioral sciences rely upon <u>indirect</u> measurement, i.e., measurement of "indicants" of inferred properties.

____ 10. The accuracy of a measure is synonymous with its reliability.

Part II. Applications

Items appearing in Part II of the test are designed to assess the ability to apply basic knowledge about measurement to the solution of tasks demanding of that knowledge. In responding to the first item identify the elements (properties, traits, characteristics, outcomes) that can be measured <u>only indirectly</u>, i.e., that are <u>hypothetical constructs</u>. Do this by placing a check in front of these elements.

____ Ability to solve story problems in mathematics

____ Knowledge of ancient history

____ Personality

____ Intelligence

____ Anxiety

____ Time required to run the hundred yard dash

____ Considerateness

____ Orientation to the use of questions

____ Citzenship

In responding to the second item in part II of the test indicate the level(s) of measurement (column 2) that are <u>appropriate and feasible within a school setting</u> for the measurement of the cognitive outcomes listed in column 1. Do this by placing the number descriptive of the level(s) of measurement in front of the cognitive outcome that is to be measured. Where more than one level is appropriate <u>rank them according to the power of the data that would come from each,</u> listing the most powerful first.

_____ Rules governing basketball	1. Knowledge level
_____ History of the Eskimo	2. Situational response level 1: Described criterion behavior
_____ Sensitivity to the feelings of others	3. Situational response level 2: Related criterion behavior
_____ Competence in math	4. Situational response level 3: Isomorphic criterion behavior
_____ Competence in marbles	
_____ Use of good table manners	
_____ Reading skill	
_____ Writing skill	
_____ Self confidence	
_____ Tolerance of individual differences	

Part III. Instrument Development

Items appearing in Part III of the test are designed to assess knowledge that is required in order to develop instruments for use in educational measurement. In responding to the first item, match the various attributes of a measure that are listed in column 1 with the phrase in column 2 that most appropriately describes the kind of evidence required in support of that attribute.

____ Relevance	1. Theoretical clarity of items
____ Representativeness	2. Conceptually appropriateness of items
____ Fidelity	3. An individual's scores on a test taken twice with two weeks intervening
____ Reliability	4. An individual's scores on alternate forms of a test
____ Construct validity	5. The correlation between an individual's performance on two measures that are known to be related
	6. The extent to which an item differentiates between those scoring high and low on a test
	7. The extent to which an item calls for behavior that is isomorphic to the property that is being measured

In responding to the second item in this part of the test indicate the class(es) of measurement (column 2) that are <u>appropriate and feasible within a school setting</u> for the measurement of the cognitive outcomes listed in column 1. Do this by placing the number descriptive of the class(es) of measurement in front of the cognitive outcome to be measured. Where more than one class is appropriate <u>rank them according to the power of the data that would come from each</u>, listing the most powerful first.

_____	Rules governing basketball	1.	Interview
_____	History of the Eskimo	2.	Systematic observation
_____	Sensitivity to the feelings of others	3.	Standardized objective measures (Paper and Pencil)
_____	Competence in math	4.	Standardized projective measures (Paper and Pencil)
_____	Competence in marbles	5.	Teacher-made tests (Paper and Pencil)
_____	Use of good table manners	6.	Unobtrusively obtained products and/or records
_____	Reading skill	7.	Unobtrusive observation
_____	Writing skill		
_____	Self confidence		
_____	Tolerance of individual differences		

CRITERION TEST: EXPERIMENTAL DESIGN

Directions: Read the proposal extract and answer the questions that follow.

III. Objectives

The primary objective of the proposed research is to determine whether or not student attitudes towards teaching objectives included in teacher education programs are effectively altered after they have had experience in simulated settings. The experimentation will be designed to answer questions which are specific to the particular experiences included in the materials. The simulation problems are, in this case, limited to situations of a personal-social nature.

Specific questions to be answered are the following:

1. Will the experiences provided through individualized instruction in the simulation facility (as described by Kersh, 1963), produce changes in attitude in a positive direction toward the subject matter of educational psychology?

2. Will changes in attitude become evident after the learner has had experience with one program of 20 problem sequences?

3. Will changes in student attitude maintain in strength following the termination of the learner's experience in the simulated setting?

IV. Procedure

A. General Method and Research Strategy

1. Sample Plan and Procedure. The experimental subjects will be selected from the students at Oregon College of Education majoring in elementary education. They will complete their instruction in the classroom simulator within one academic year of their practice-teaching experience or internship. The subjects will be screened on the basis of previous educational background and experience to insure homogeneity in this regard. Also, they will be screened on the basis of their performance on the pretest of attitude toward specific teaching objectives selected from those included in education courses. In so far as possible, only those students whose performance on the pretest indicates that they are neutral or negative toward the specific teaching objectives will be included. Subsequently, the subjects will be assigned to either

the experimental or the control group randomly on the basis of scholastic aptitude, sex, and other selected variables which otherwise might bias the findings.

2. Treatments. The classroom simulation technique under consideration attempts to create for the student teacher all of the relevant features of a single classroom situation.

In brief, the instructional procedure which has been developed for experimentation with the simulation materials is as follows: First the student teacher (T) is oriented to the simulation facility and to the procedure, then he is given a performance test in the simulated classroom using one of the three programs. The orientation and pretesting procedure takes approximately one and one-half hours per subject. Next, T is given the actual instruction in the simulation facility. The filmed problem sequences of actual classroom situations are presented and T is requested to enact his response to each. Depending upon the reaction of T, the experimentor (E) selects and projects one of two or three alternative feedback sequences.

3. Controls. The control group will be treated in every respect the same as the experimental group except the individuals in the control group will not experience instruction in the simulated setting. Differences in attitude between the experimental and control groups may be attributed only to experience in the simulation facility.

B. Data Types to be Gathered and Methods to be Used.

As is indicated above, the experimental group will undergo experience in the simulation facility which may be conveniently interrupted at three points: (1) at the end of the pretest period which includes the first 20 problem sequences; (2) after the instructional period, and, (3) after the post-test which terminates the experience in the classroom simulation facility. Criterion tests will be administered to individuals in the experimental group before their experience in the simulation facility begins, and after each of the instructional phases indicated above. Approximately six weeks after termination of the simulation experience, the criterion test will be administered once again. Individuals in the control group, which will not have experience in the simulation facility, will be tested on a time schedule approximating that of individuals in the experimental group.

QUESTIONS:

1; What is the experimental unit?

2. What is/are the experimental treatment(s)?

3. What is the method of assignment?

4. Diagram the design using R's, X's, and O's.

5. List sources of invalidity that are accounted for.

6. List sources of invalidity that are not accounted for.

7. Redesign the proposal, give both new diagram and brief explanation.

Data Analysis I

Criterion Examination

1. Assume that the numbers 6, 13, 24 were taken from a ratio scale. Which of the following sets of numbers would be appropriate substitution?

   a. 13, 20, 31
   b. 24, 52, 96
   c. 11, 25, 47
   d. 1, 6, 14

2. If the numbers 4, 17, 43 were taken from an ordinal scale, which of the following sets would be an appropriate substitution?

   a. 1, 2, 3
   b. 4, 16, 12
   c. 13, 10, 26
   d. none are appropriate

3. If the numbers 6, 21, 24 represent an interval scale which set of numbers would be an appropriate substitution?

   a. 11, 40, 45
   b. 12, 42, 48
   c. 18, 63, 72
   d. 21, 35, 39

For each of the following kinds of measures indicate whether the scale is nominal, ordinal, interval, and ratio

4. Human age in years. _____

5. IQ _____

6. Numbers on pages in a book _____

7. Notes on the musical scale _____

8. Temperature on a centigrade scale _____

9. Elapsed time in seconds _____

10. Calendar years _____

11. An investigator wished to determine whether physical coordination training was effective in improving reading effectiveness. He selected a sample of "below grade placement" readers and gave them 20 hours of training in lateral coordination. A second sample was chosen from the same pool of low readers and given no training. For analysis purposes he should consider the samples

    a. independent

    b. related

12. A second investigator studying the same problem selected only one group of low readers and gave them training. He then compared pretraining and post-training reading performance. His samples should be considered

    _____

13. A third investigator thought that differences in training effectiveness might be expected for boys and girls. He designed his study to have training and no training groups of boys and girls. How many samples would be required for analysis purposes?

    _____

14. The null hypothesis which states that "the differences between means and variances of samples are no greater than differences due to the vagaries of random sampling from a single, normally distributed, infinite population," is best suited for

    a. causal-comparative studies
    b. experimental studies
    c. exploratory studies
    d. studies of physical characteristics only.

15. Causal-comparative studies differ from experimental studies in that

    a. Causal-comparative studies look for differences while experimental studies only look for change.
    b. Causal-comparative studies attend to differences in means and variances while experimental studies attend only to differences in means.
    c. Causal-comparative studies seek explanations on the basis of some characteristic of subjects, while experimental studies seek to determine effects of an additional influence.
    d. The two are synonymous.

16. All too often investigators state their null hypothesis merely as "the samples did not differ." This leads to confusion because

    a. The samples are not adequately described.
    b. The dependent variable is undefined.
    c. The analysis technique is unstated.
    d. The basic assumptions of sampling are omitted.

For each of the following research problems indicate which null hypothesis (I, II, or III) is most appropriate.

17. An investigator wished to determine if right-handed or left-handed baseball pitchers revealed greater eccentricities as measured by Karl Olliver Obvious Key Induction Examination. He chose random samples of 50 right-handed and left-handed pitchers from rosters of the teams in the American, National, and Pacific Coast leagues.

    _____

18. After selecting three random samples of sixth grade students, an investigator gave one group intensive training in problem solving, a second group a similar amount of training in logic, and no training to a third group. He then tested the creative abilities of the three groups.

    _____

19. An investigator wished to determine whether school administrators were more effective after completing his course. He watched his class members with other administrators in his state on the basis of sex, age, years of administrative experience, and number of hours of graduate credit.

    _____

20. An investigator wished to varify his observation that boys were more quantitatively inclined than girls. He selected random samples of 10th grade boys and girls enrolled in his high school.

    _____

Data Analysis II

Criterion Examination

For each of the following research situations describe the appropriate analysis technique.

1. The investigator wished to determine whether or not achievement in arithmetic, as measured by a standardized test reporting scores in grade placement equivalents was related to nonverbal I.Q.

2. An investigator asked the question "is college attendance predicted by high school grade point average, size of graduating class, and SAT verbal scores?"

3. A group of judges observed teaching behavior exhibited by 25 student teachers and ranked them according to their effectiveness. The investigators wished to determine if these rankings were related to average grades in professional courses received by the subjects.

4. An investigator determined the validity of his test by showing that persons who scored higher on his test completed their degree programs while those who scored lower did not complete their degrees. This relationship could best be described by:

5. To evaluate the effectiveness of a set of instructional materials, the researcher administered pre- and post-training tests (25-item, multiple-choice test) to a group of college freshman English students.

6. A college student personnel officer wished to know whether purchase of activities tickets differed among students living in dormitories, living in off-campus apartments or commuting from home.

7. Reaction times were recorded for three types of students, at four different times of the day, under two temperature conditions for five consecutive days.

8. A college political science professor was interested in determining whether men or women tended to participate more frequently in anti-Viet Nam demonstrations held on campuses. All students enrolled in political science courses were polled.

9. A biology instructor teaching two sections of bacteriology required weekly lab attendance for members of one class and compared their performance on his final exam with performance of the second class which experienced no lab sessions.

10. A sales manager was interested in determining which of several characteristics (annual income, age, size of family, etc.) were most accurate in differentiating Cadillac buyers from Corvair buyers.

11. A dean of women postulated that women enrolled in the College of Education were more attractive than women enrolled in the College of Arts and Sciences. Over a five year period she recorded the college affiliation of all women who were finalists in the 10 separate beauty contests held each year.

12. A curious physiological psychology major wished to determine whether scholastic aptitude (SAT verbal score) was related to sex (male and female).

13. A college golf coach wished to determine whether there was a relationship between the order of finish in his conference tournament and season average scores of his team members.

14. Ten pairs of identical twins were identified by a psychologist. At random one twin from each pair was assigned to attend nursery school for one term. At the end of the term the psychologist obtained measures of social adaptivity for all 20 twins. Scores on the social adaptivity scale were such that they could be ranked in order of absolute magnitude.

15. An investigator wishes to determine whether the 20 items on his test differ in difficulty. He administers the test to 75 subjects and records pass-fail information for each itme for each subject.

16. An investigator wished to determine whether there was any association between social class status and choice of high school curriculum. In a large high school he recorded the number of students in each of five social classes which chose each of three curricula.

Appendix G

Written Evaluation

Appendix G

Evaluation

National Research Training Institute

1. How were the "warm blanket" services--housing, food and drink, transportation, etc?

   Good in _____...

   Weak in _____...
   Suggested improvement:

2. How might the weekly schedule be improved: Consider the a) balance between group activity and independent study, b) time allowed for informed discussion c) sequence of activities, etc.

3. Rate the two presentations of each topic separately on a 5 point scale.

   5-- Superior; 4-- Good; 3-- About average; 2-- Fair; 1-- Poor

TOPICS	The Written Section In the Manual	The Large Group Presentation
I. Orientation and Overview		
II. Specifying Behavioral Objectives		
III. Objective Analysis and In-Structional Specifications		
IV. Measurement		
V. Instructional System Development		
VI. Research Design		
VII. Data Analysis i		
VIII. Data Analysis II		
IX. Proposal Writing		

4. What is your reaction to the general idea of a Research Training Institute now that you have attended one?

5. Any other comments?